$m = \frac{y_2 - y_1}{x_2 - x_1}$; $y - y_1 = m(x - x_1)$

$y = mx + b$ slope intercept form

$Ax + By = C$ standard form

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Standard Form

$Ax + By = C$

A must be positive

A, B, & C must be integers (no fraction no decimal)

If $(2,3)$ & $(-10,6)$ $\left(y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1)\right)$

$m = \frac{6-3}{-10-2}$

$m = \frac{3}{-12}$

$m = -\frac{1}{4}$

$y - y_1 = m(x - x_1)$

$y - 3 = -\frac{1}{4}(x - 2)$

$4\left(y - 3 = -\frac{1}{4}x + \frac{2}{4}\right)$

$4y - 12 = -1x + 2$

$+1x \quad +12 \quad +1x + 12$

$1x + 4y = 14$

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3a $m = -3$; pt $(-1, 7)$

$y - y_1 = m(x - x_1)$

$y - 7 = -3(x + 1)$

$y - 7 = -3x - 3$

$+7 \quad +7$

$y = -3x + 4$

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3b

x int $= 5$ $\Rightarrow (5, 0)$

y int $= 3$ $\Rightarrow (0, 3)$

$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1)$

$y - 0 = \frac{3 - 0}{0 - 5}(x - 5)$

$y = \frac{3}{-5}(x - 5)$

$y = -\frac{3}{5}x + 3$

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2) functions

~~$f(2) + g(1)$~~

$f(x) = 2x - 4$ $g(x) = x^2 - 4x$

$f(3) - 5 =$

$2(3) - 4 - 5$

$6 - 4 - 5$

$f(3) - 5 = -3$

$g(-3) = (-3)^2 - 4(-3)$

$g(-3) = 9 + 12$

$g(-3) = 21$

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$\frac{0}{\#}$ horizontal line w/ zero slope $y = \#$

$\frac{\#}{0}$ vertical line w/ undefined slope $x = \#$

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